

CLAIMS

What is claimed is:

1. A manually operated working tool such as an internal combustion operated setting tool for driving in fastening elements including one of nails, bolts, pins into a magnetizable substrate, having an inductive metal detector assembly (20) with at least one excitation coil arrangement (21) and evaluation means, wherein the inductive metal detector system (20) has a means for generating an alternating current for the excitation coil arrangement (21) having at least two consecutive frequencies f_n from a starting frequency f_0 to an end frequency f_{\max} .
2. The working tool of claim 1, wherein the means for generating the frequency sequence is a stepped frequency generator (23).
3. The working tool of claim 1, wherein the inductive metal detector assembly (20) has an evaluation coil arrangement (22) that is arranged externally around the excitation coil arrangement.
4. The working tool of claim 3, wherein the evaluation means of the inductive metal detector assembly (20) has a correlator means (25) for compensation of a system-internal harmonic pattern.
5. The working tool of claim 4, wherein the inductive metal detector assembly (20) has a data processing unit (26) for comparing the measured harmonic pattern, corrected by the correlator means (25), with stored harmonics patterns of known substrates.
6. The working tool of claim 5, wherein the evaluation means of the inductive metal detector assembly (20) detects a second magnetizable component (42) and passage of the manually operated working tool into a non-operating mode, if the inductive metal detector (20) does not detect a second magnetizable component (42) under a first magnetizable component (41).
7. The working tool of claim 6, wherein the manually operated working tool is an internal combustion operated setting tool (10), wherein a firing unit (18) can

be deactivated using a switching means (28), if the inductive metal detector assembly (20) does not detect a second magnetizable component (42) under a first magnetizable component (41).

8. The working tool of claim 7, wherein the manually operated working tool is an internal combustion operated setting tool (10), wherein at least one of the excitation coil arrangement (21) and the evaluation coil arrangement (22) is arranged at a forward zone (16) of a bold guide (15).

9. A method for detecting a second magnetizable component (42) concealed behind a first magnetizable component (41) using an inductive metal detector assembly (20) on a manually operated working tool, wherein the inductive metal detector assembly (20) has at least one excitation arrangement (21), at least one evaluation coil arrangement (22) and evaluation means, including the following processing steps:

- a.) Initializing the inductive metal detector assembly (20);
- b.) Setting the frequency f_n , within a frequency range of f_0 to f_{max} ;
- c.) Generating a magnetic field having the frequency f_n at the excitation coil arrangement (21);
- d.) Receiving a magnetic secondary field at the evaluation coil arrangement (22) for generating the secondary current;
- e.) Frequency spectral evaluation of the secondary current from the evaluation coil arrangement (22) in the evaluation means;
- f.) Intermediately storing the detected harmonic frequencies and amplitudes in the evaluation means;
- g.) Repeating steps b.) to f.) so long as f_{max} is not reached;
- h.) Filtering out all frequencies of harmonics that were generated by magnetization of the manually operated working tool and by the first magnetizable component (41) and using data stored in the evaluation means;

- i.) Comparing the remaining frequency pattern of the harmonics with patterns stored in the assessment means of two magnetizable components;
- j.) Passing the manually operated working tool into an operation – ready mode, if a second magnetizable component (42) is detected by the inductive metal detector assembly (20) under the first magnetizable component (41);

10. The method of claim 9, wherein the manually operated working tool is configured as an internal combustion operated setting tool (10).

11. The process of claim 9, wherein the frequency spectral evaluation of the secondary current is performed in the evaluation means by a fast Fourier transformation (FFT).